



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,057	09/24/2003	Toshio Hashimoto	242867US6	4005
22850	7590	11/23/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			FLANIGAN, ALLEN J	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

88

Office Action Summary	Application No. 10/669,057	Applicant(s) HASHIMOTO, TOSHIO	
	Examiner Allen J. Flanigan	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
 4a) Of the above claim(s) 3-6, 8-10, 13 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 11, 12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claims 3-6, 8-10, 13, and 15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/14/2005.

Applicants' traversal is on the basis that "the search and examination of the application could be performed without serious burden". This is not a proper traversal; a proper traversal should point out the errors in the basis for restricting (i.e. why the claims drawn to the different species are not patentably distinct). Further, applicants' assertions regarding the burden are not correct. The numerous disclosed species and subspecies can be combined in 55 distinct permutations. The burden of searching and examining such a large number of distinct embodiments would be prohibitive.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sagal et al. in view of Itoh.

Sagal et al. teach a heat pipe for cooling heat generating electronic components such as CPUs that employs a construction with conductive filler

such as carbon fibers molded in a polymer base. Sagal et al. do not expressly disclose a “capillary action member”.

It is well known in the heat pipe art to provide a wicking means to provide capillary flow of liquid to permit heat pipes to direct heat flow against, or in the absence of, gravitational forces. Such wicking means can also serve to improve wetting of the evaporator section of a heat pipe. Itoh teach the use of grooves 15 on the internal surface of a heat pipe for electronic cooling to provide capillary flow of liquid within the heat pipe. In view of this, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to provide such grooves in the heat pipe of Sagal et al. to enhance liquid flow.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sagal et al. in view of Itoh as applied to claim 1 above, and further in view of Hendricks et al.

Sagal et al. expressly indicate that “other base materials and conductive fillers may be used” besides the carbon fibers suggested (lines 40-42 of column 4). Hendricks et al. teach that it is known to embed carbon nanotubes in polymer/resin binders to form heat pipes. According to Hendricks et al., single wall nanotubes or SWNTs “can basically be described as nanoscale cylinders of graphite”. In view of Sagal et al.’s suggestion of carbon fibers, and their express suggestion regarding substituting other conductive fillers, it would have been obvious to one of ordinary skill in the art at the time the instant

Art Unit: 3753

invention was made to substitute such nanotubes for the carbon fibers of Sagal et al.

Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sagal et al. in view of Itoh as applied to claim 11 above, and further in view of Katsui.

As shown by Itoh and also discussed in Sagal et al. (see fins 6 of Itoh, see lines 31-34 of column 5 of Sagal et al.), it is known to provide a "heat sink" (i.e. fins for extended surface area for improved heat rejection) in the heat rejection (condenser) region of a heat pipe. Katsui further show that it is well known in the art to provide a fan to give forced convection cooling of such fins to increase heat rejection capability. Thus, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ a fan with the heat pipe of Sagal et al., modified to include the internal capillary grooves taught in Itoh.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The remaining references show various heat pipe constructions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Blau can be reached on (571) 272-4406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen J. Flanigan
Primary Examiner
Art Unit 3753

AJF